those dates. On the 30th the disturbance was off the British coasts.

In connection with this storm, Captain B. Gleadell, commanding the s. s. "Celtic," in about N. 47° 39′, W. 40° 18′, furnishes the following letter:

It commenced on the 27th at 10 a. m., ship's time, with the wind from sse., (true) force 6, light rain, and barometer falling rapidly. 11.30: suddenly shifted to sw., thence gradually veered w. by s., and increased to force 8. Noon: barometer 28.85 (732.8), stopped falling. 1 p. m.: barometer 28.90 (734.0), began to fall again, and wind backed sw. by s., force 9. 3.30 p. m.: barometer 28.79 (731.3), began to rise again, and wind veered w. by s. 10 p. m.: barometer 28.94 (735.1), storm at its height, force 11–12, and continued with unabated fury and gradually rising barometer until the 28th, 6 p. m., when the wind veered to w. without any abatement in force until 2 p. m., when it gradually moderated to a strong gale, afterwards moderating to a strong breeze at midnight, then it veered to nw., and moderated to light breeze. Encountered a very high northerly swell next day, 29th. It may be of interest to note that the speed of ship during the height of the storm, had to be reduced to three knots per hour, and ship's head brought end on to the sea, in order to avoid doing damage; as it was, we had two boats disabled.

9.—This disturbance was a continuation of that charted as low area x., which moved into the Atlantic from the New Jersey coast and thence northeastward to Nova Scotia during the 28th. On the 29th it was near the southern coast of Newfoundland; from that date until the close of the month it moved northeastward, causing a continuance of the severe gales which accompanied number 8. This disturbance closely followed the preceding, the combined system forming an extensive area of low barometer, within which the pressure ranged from 28.4 (721.3) to 29.3 (744.2) over the region from N. 45° northward, and between the forty-fifth meridian and the European coasts, while strong gales from sw. to nw. prevailed as far south as the thirty-fifth parallel.

OCEAN ICE.

On chart i., are exhibited the eastern and southern limits of the region within which icebergs have been observed during January, 1885. These limits are determined from reports furnished by shipmasters, and from data published in the "New York Maritime Register."

During the month icebergs have been reported between W. 45° 30′ and W. 42° 24′. None were observed south of the forty-seventh parallel.

In January, 1885, they were observed about 11 days earlier than in the same month of last year, and were about 4° farther to the eastward than those of January, 1884.

In January, 1883, the first icebergs reported were seen in N. 47° 35′, W. 45° 04′, on the 30th; in 1882 the first icebergs were seen in N. 47° 30′, W. 48° 35′, also on the 30th.

Icebergs were reported in January, 1885, as follows:

January 13th.—S. S. "City of Montreal," in N. 47° 33′, W. 42° 56′, passed an iceberg 600 feet long and 80 feet high; s. s. "Siberian," in N. 47° 27′, W. 43° 24′, passed a large iceberg.

January 31st.—S. S. "Ethiopia," at 5 a. m. passed a large iceberg in N. 48° 43′, W. 42° 24′; from 7 a. m. to noon, in N. 48° 20′, W. 43° 24′, passed five large icebergs; from noon to midnight, in N. 47° 32′, W. 45° 30′, passed six large icebergs.

SIGNAL SERVICE AGENCIES.

Signal Service agencies have been established in the Maritime Exchange buildings at New York and Philadelphia, and in the Custom House at Boston, where the necessary blanks and other information will be furnished to shipmasters.

The following circular explains the object of these agencies:

UNITED STATES OF AMERICA,
SIGNAL OFFICE, WAR DEPARTMENT,
Washington City, November 29, 1884.

SHIP-MASTERS: It is now generally known that a large percentage of *American storms* travel across the Atlantic and in a few days after leaving our coast affect the *weather conditions of Europe.* Ship-masters' observations prove this, and Captain Henry Toynbee, Marine Superintendent of Great Britain, who has investigated the subject with much vigor, says: "ENE., thirty to forty miles an hour, has been adopted as a rough estimate of the track and speed of storms crossing the Atlantic until they arrive off the west coasts, when they are affected by the disposition of pressure over western Europe."

How important it is, then, for the ship-master about to sail to America from European ports to know the *probable weather conditions* he is likely to have on his westward passage, or where he will be likely to encounter a *storm or hurricane at sea.*

The London Meteorological office will now make an earnest effort to make such predictions, and, in connection therewith, *the United States Signal Service*, at the solicitation of *the Meteorological Council of Great Britain*, has accepted an invitation to lend assistance in this important movement to benefit the *commerce of the whole world*, and will collect meteorological information from ship-masters arriving in New York and Boston and cable the same to the London Meteorological Office. From this point bulletins and warnings will be issued and telegraphed in times of great danger to all *European seaports.*

* * * * * *

I am, very respectfully, your obedient servant,

W. B. HAZEN,
Brig. & Bvt. Maj. Gen'l,
Chief Signal Officer, U. S. A.

In pursuance of the arrangements made with the Meteorological Office of London, England, there have been cabled to that office from New York twelve reports of storms encountered by vessels on the Atlantic west of the forty-fifth meridian. Three messages were sent from Boston.

TEMPERATURE OF THE AIR.

[*Expressed in degrees, Fahrenheit.*]

The distribution of mean temperature over the United States and Canada for January, 1885, is exhibited on chart ii. by the dotted isothermal lines; and in the table of miscellaneous data are given the means for the various stations of the Signal Service.

In the following table are given the mean temperatures for the several geographical districts with the normals and departures, as deduced from the Signal Service observations:

Average temperatures for January, 1885.

Districts.	Average for Jan. Signal-Service observations.		Comparison of Jan., 1885, with the average for several years.
	For several years.	For 1885.	
	°	°	°
New England	26.1	26.1	0.0
Middle Atlantic states	33.2	33.8	+ 0.6
South Atlantic states	47.1	47.3	+ 0.2
Florida peninsula	61.5	61.5	0.0
Eastern Gulf states	48.9	45.7	— 3.2
Western Gulf states	47.4	43.5	— 3.9
Rio Grande valley	58.3	51.8	— 6.5
Tennessee	39.7	34.8	— 4.9
Ohio valley	32.2	26.8	— 5.4
Lower lake region	26.1	21.6	— 4.5
Upper lake region	18.7	12.2	— 6.5
Extreme northwest	4.3	— 2.2	— 6.5
Upper Mississippi valley	23.2	16.2	— 7.0
Missouri valley	16.4	9.8	— 6.6
Northern slope	17.6	16.8	— 0.8
Middle slope	25.5	20.8	— 4.7
Southern slope	43.3	38.8	— 4.5
Southern plateau	40.9	39.8	— 1.1
Middle plateau	28.9	30.2	+ 1.3
Northern plateau	29.1	23.8	— 5.3
North Pacific coast region	39.0	39.9	+ 0.9
Middle Pacific coast region	47.1	48.4	+ 1.3
South Pacific coast region	53.1	53.0	— 0.1
Mount Washington, N. H	5.4	0.7	— 4.7
Pike's Peak, Colo	2.4	1.4	— 1.0

On chart iv. the deviations from the normal temperature are graphically exhibited by the dotted lines connecting stations of equal departure. At nearly all stations on the Atlantic coast, in western Montana, and on the Pacific coast except in the Columbia valley, the mean temperature for January, 1885, has been above the normal, but the departures have exceeded 3° at but few stations, viz: Helena, Montana, +4°.9; Roseburg, Oregon, +3°.5; Delaware Breakwater, Delaware, +3°.2; Chincoteague, Virginia, and Kitty Hawk, North Carolina, +3°.1. In the Gulf states and in all of the interior districts with the exception of western Montana, the mean temperature has been below the normal, the departures being greatest in Kansas, Nebraska, the lake region, and in the upper Mississippi, Missouri and Ohio valleys. In these dis-

tricts the month was unusually cold, the mean temperature generally averaging from 6° to 11° below the normal. At Milwaukee, Wisconsin, and Duluth, Minnesota, the departures were 10°.1 and 11°.9 below the January normal for fourteen and thirteen years, respectively, these being the most marked departures for the month. In portions of Idaho, Oregon, and Washington Territory, the mean temperature has also been decidedly below the normal, the departures amounting to —6°.3, and —8°.1 at Boisé City and Lewiston, Idaho, respectively.

RANGES OF TEMPERATURE.

The monthly and daily ranges of temperature at the various Signal Service stations are shown in the table of miscellaneous meteorological data. The monthly ranges were greatest in California, Nebraska, and Kansas and from Minnesota westward to Idaho; they were least in southern Florida and along the Pacific coast. The largest monthly ranges were: Fort Benton, Montana, 90°; Fort Bennett, Dakota, 88°.4; West Las Animas, Colorado, 88°.3; Mount Washington, New Hampshire, 87°; and Saint Vincent, Montana, 85°. The smallest monthly ranges were: San Francisco, California, 18°.5; Cape Mendocino, California, 21°.6; Key West, Florida, 23°.1; Sacramento, California, 27°.8; San Diego, California, 29°.4.

DEVIATIONS FROM MEAN TEMPERATURE.

The departures exhibited by the reports from the regular Signal Service stations are shown in the table of average temperatures for the various districts, in the table of miscellaneous data, and on chart iv. The following notes in connection with this subject are reported by voluntary observers:

Arkansas.—Lead Hill, Boone county: mean temperature, 28°.8, is 2°.3 below the January average for the three preceding years.

Dakota.—Webster, Day county: mean temperature, 4°.2, is 3°.6 above the January average for the two preceding years.

Illinois.—Anna, Union county: mean temperature, 25°.9, is 7°.2 below the January average for the last ten years.

Sycamore, De Kalb county: mean temperature, 10°.2, is 6°.0 below the January average for the three preceding years.

Riley, McHenry county: mean temperature, 8°.8, is 9°.1 below the January average for the last twenty-two years; in only two years during that period has January been colder, viz: in 1875, and 1883.

Peoria, Peoria county: mean temperature, 16°.8, is 7°.6 below the January average for the last thirty years. The normal temperature during the same period for the first, second, and third decades of the month are 22°.6, 24°.5, and 25°.9, respectively.

Indiana.—Vevay, Switzerland county: mean temperature, 26°.7, is 4°.7 below the January average for the last twenty years.

Logansport, Cass county: mean temperature, 18°.6, is 6°.8 below the January average for the last twenty-six years.

Wabash, Wabash county: mean temperature, 19°.0, is 5°.7 below the January average for the last nine years.

Spiceland, Henry county: mean temperature, 19°.9, is about 7° below the January average for the last thirteen years.

Kansas.—Lawrence, Douglas county: mean temperature, 18°.7, is 7°.9 below the January average for the last seventeen years.

Independence, Montgomery county: mean temperature, 20°.0, is 8°.5 below the January average for the last thirteen years, and is the lowest January mean for that period.

Atchison, Atchison county: mean temperature, 16°.2, is, with the exception of that for January, 1875, the lowest recorded during the last twenty-one years.

Wellington, Sumner county: mean temperature, 18°.9 is the lowest monthly mean on the observer's record, which begins with January, 1879.

Maine.—Gardiner, Kennebec county: mean temperature, 19°.2, is 1°.4 above the January average for the last forty nine years.

Maryland.—Fallston, Harford county: mean temperature, 29°.5, is 0°.5 below the January average for the last fourteen years.

Cumberland, Allegheny county: mean temperature, 29°.0, is 1°.8 below the January average for the last twelve years.

Massachusetts.—Worcester, Worcester county: mean temperature, 22°.9, is 1°.8 below the January normal for nearly half a century. The highest January mean for that period, 36°.8, occurred in 1880; and the lowest, 15°.9, occurred in 1859.

Missouri.—Saint Louis: mean temperature, 22°.5, is 9° below the January normal.

Nebraska.—Beaver Creek, Buffalo county: the average noon temperature is 18°, or 9°.2 below the normal noon temperature for the last six years.

New Hampshire.—Contoocook, Merrimack county: mean temperature, 21°.2, is about 1° above the January normal.

New Jersey.—South Orange, Essex county: mean temperature, 28°.8, is 0°.6 above the January average for the last fifteen years.

New Mexico.—Puerto de Luna, San Miguel county: old setlers report that the winter of 1884–5, to January 31st, has been the coldest experienced for many years. The minimum temperature of January, 1885, is —12°, or 14° below that for January, 1884.

New York.—Palermo, Oswego county: mean temperature, 17°.7, is 4°.1 below the January average for the last thirty-two years.

North Volney, Oswego county: mean temperature, 19°.7, is 2°.2 below the January average for the last seventeen years.

Ohio.—College Hill, Hamilton county: mean temperature, 20°.9, is 10°.6 below the January average for the last seven years.

Wauseon, Fulton county: mean temperature, 15°.6, is 7°.8 below the January average for the last fifteen years; the mean temperature for the first half of the month was 25°.5, and for the second half it was 4°.7.

Pennsylvania.—Dyberry, Wayne county: mean temperature, 21°.2, is 0°.2 above the January average for the last twenty-one years.

Virginia.—Variety Mills, Nelson county: mean temperature, 33°.6, is 1°.3 below the January average for the last eight years.

Wytheville, Wythe county: mean temperature, 33°.0, is 2°.1 below the January average for a period of twenty years.

Vermont.—Woodstock, Windsor county: mean temperature, 15°.6, is 0°.7 above the January average for the last eighteen years.

West Virginia.—Helvetia, Randolph county: mean temperature, 30°.7, is 2°.1 below the January average for the last nine years.

LOW TEMPERATURES.

Poplar River, Montana: on the morning of the 1st, a minimum temperature of —63°.1 occurred, which is the lowest ever recorded in the United States.

Huron, Dakota: the minimum temperature on the 1st, was —33°, the daily mean being —24°.9; on the 2d, the minimum temperature was —32°.8.

West Las Animas, Colorado: the minimum temperature on the 1st, —25°.9, was the lowest recorded since the establishment of this station in February, 1882.

Saint Paul, Minnesota: on the morning of the 2d the temperature fell to —35°.6, this being the lowest recorded during the last eleven years, with one exception, viz: —39° on December 25th, 1879.

Duluth, Minnesota: on the 2d the minimum temperature was —41°.2, which is 3°.2 lower than the lowest previously recorded at this station. Reports from the Northern Pacific junction, twenty miles west, state that the temperature fell to —46°, and at Tower, seventy miles north, a temperature of —48° was recorded. Much suffering was caused by the severe weather, many persons having been frost-bitten.

Table of comparative minimum temperatures for the month of January.

State or Territory.	Minimum for January, 1885, Signal Service.		Minimum since Signal-Service stations were opened—3 to 14 years.			Lowest from any other source.			
	Station.	Temperature.	Station.	Temperature.	Year.	Place.	Temperature.	Year.	Length of record.
		°		°			°		Years.
Alabama	Montgomery	19.2	Montgomery	8	1884	Huntsville	— 9	1832, 1836	9
Do	Mobile	19.9	Mobile	14	1884	Mobile	19	1873	33
Arizona	Prescott	— 4.0	Prescott	—17	1880	Fort Canby (old)	—20	1855	12
Do	Fort Apache	— 4.0	Fort Grant	10	1883	Camp Grant	19		13
Arkansas	Fort Smith	2.4	Fort Smith	— 5	1884	Fort Smith	2		22
Do	Little Rock	9.6	Little Rock	0	1884	Little Rock	16		28
California	Red Bluff	33.0	Red Bluff	19	1883	Fort Crook	—20	1859	11
Do	San Francisco	43.0	San Francisco	36	1876, 1883	Camp Bidwell	—18	1868	11
Colorado	Pike's Peak	—29.4	Pike's Peak	—37	1883	Fort Garland	—40	1873	30
Do	Denver	—10.9	Denver	—29	1875	Fort Lyon	—28	1875	22
Connecticut	New London	1.—	New London	—14	1873	Colebrook	—25	1861	9
Do	New Haven	— 0.9	New Haven	—14	1873	New Haven	—24	1835	87
Dakota	Fort Totten	—37.0	Pembina	—53	1877	Fort Randall	—44	1875	22
Do	Fort Buford	—45.5	Fort Buford	—46	1883	Fort Stevenson	—55	1881	9
Delaware	Delaware Breakwater	12.1	Delaware Breakwater	9	1884	Fort Delaware	— 5	1866	44
District of Columbia	Washington City	10.2	Washington City	—14	1881	Washington City	—14	1835	48
Florida	Pensacola	24.3	Pensacola	10	1884	Fort Barrancas	10	1852	61
Do	Key West	59.3	Key West	48	1879	Key West	44	1857	44
Georgia	Atlanta	13.7	Atlanta	— 1.3	1881	Atlanta	3	1873	4
Do	Augusta	22.0	Augusta	14	1884	Savannah	18	1845, 1870	37
Idaho	Boise City	— 7.3	Boise City	7	1878	Fort Hall	—12	1872, 1873	4
Do	Cœur d'Alene	—22.5	Fort Lapwai	—38	1882	Fort Lapwai	—32	1875	19
Illinois	Chicago	—12.9	Chicago	—18.5	1884	Chicago	—25	1864	37
Do	Cairo	— 4.0	Cairo	—16	1884	Rock Island Arsenal	—29	1873	14
Indiana	Indianapolis	—11.3	Indianapolis	—25	1884	Arlington (near)	—25	1879	2
Indian Territory	Fort Reno	— 2.5	Fort Gibson	—12	1881	Fort Gibson	— 20	1857	54
Iowa	Dubuque	—22.5	Dubuque	—26	1883	Dubuque	—29	1864	11
Do	Des Moines	—20.2	Des Moines	—30	1884	Davenport	—22		7
Kansas	Leavenworth	—10.8	Leavenworth	—29	1873	Fort Leavenworth	—30	1834	52
Do	Dodge City	—18.2	Dodge City	—20	1873	Fort Riley	—29	1862	21
Kentucky	Louisville	— 5.0	Louisville	—19.5	1884	Newport Barracks	—15		29
Louisiana	Shreveport	13.0	Shreveport	0	1879	Baton Rouge	8	1852	2
Do	New Orleans	27.7	New Orleans	20	1879	New Orleans	17	1852	51
Maine	Eastport	—11.0	Eastport	—20	1874	Brunswick	—32	1859	52
Do	Portland	— 3.2	Portland	—11.5	1882	Portland	—19		37
Maryland	Baltimore	10.2	Baltimore	— 6	1881	Fort McHenry	—15	1873	53
Massachusetts	Boston	— 1.7	Boston	—13	1882	Williamstown	—30	1835	55
Michigan	Escanaba	—26.1	Escanaba	—28	1873	Fort Brady	—42	1873	60
Do	Mackinaw City	—34.2	Marquette	—26	1881	Marquette	—31		7
Minnesota	Saint Vincent	—40.0	Saint Vincent	—44	1881, 1882	Fort Ripley	—44	1860	17
Do	Saint Paul	—35.6	Saint Paul	—32	1884	Saint Paul	—39	1868	7
Mississippi	Vicksburg	19.0	Vicksburg	10	1875, 1884	Fayette	7	1879	9
Missouri	Saint Louis	— 9.7	Saint Louis	—16	1875	Saint Louis	—19	1835	40
Montana	Fort Benton	—37.9	Fort Benton	—55	1875	Fort Benton	—58	1875	13
Do	Helena	—15.5	Virginia City	—44	1875	Fort Ellis	—53	1872	15
Nebraska	Omaha	—18.4	Omaha	—22	1879	Omaha	—21	1873	3
Do	North Platte	—26.8	North Platte	—27	1881	Fort Niobrara	—35	1881	1
Nevada	Winnemucca	8.9	Winnemucca	—14	1879	Fort Ruby	—23	1864	5
New Hampshire	Mount Washington	—50.0	Mount Washington	—40	1875	Dartmouth College	—34	1848	17
New Jersey	Barnegat City	8.6	Barnegat City	—10	1875	Paterson	—13	1866	10
Do	Sandy Hook	6.6	Sandy Hook	— 3	1879	Atco	—24	1881	7
New Mexico	Santa Fé	— 3.2	Santa Fé	—13	1882	Fort Union	—25	1881	31
New York	Albany	—10.5	Albany	—18	1878	Salem	—40	1840	8
Do	Rochester	— 5.3	Rochester	—13	1873	Gouverneur	—38	1835	40
North Carolina	Charlotte	10.8	Charlotte	11	1879, 1881	Lenoir	—16	1877	7
Do	Kitty Hawk	21.6	Kitty Hawk	11	1879	Fort Johnson	15		55
Ohio	Columbus	— 8.1	Columbus	—20	1879, 1884	Cleveland	—11		11
Do	Cincinnati	— 8.5	Cincinnati	—10	1879	Cincinnati	—12		36
Oregon	Portland	17.0	Portland	3	1875	Fort Dalles	—23	1862	16
Do	Roseburg	27.3	Roseburg	12	1883	Camp Harney	—15		6
Pennsylvania	Philadelphia	5.0	Philadelphia	— 5	1875	Philadelphia	— 9	1866	111
Do	Pittsburg	1.7	Pittsburg	—12	1875	Carlisle Barracks	—28	1873	37
Rhode Island	Block Island	5.5	Newport	3	1879	Providence	—17	1866	35
Do	Narragansett Pier	0.0	New Shoreham	— 4	1882	Fort Adams	—13		41
South Carolina	Charleston	28.0	Charleston	19	1873	Charleston	10	1852	105
Tennessee	Memphis	2.7	Knoxville	—16	1884	Clarksville	—10	1879	8
Do	Nashville	— 2.2	Nashville	—10	1884	Glenwood Cottage	— 8	1864	10
Texas	Fort Elliott	— 6.0	Fort Elliott	—12	1883	Fort Davis	—15	1873	28
Do	Fort Concho	1.6	Fort Concho	— 1	1881	Camp Stockton	— 3		15
Utah	Salt Lake City	4.8	Salt Lake City	—20	1883	Salt Lake City	— 8	1864	3
Do						Coalville	—30	1875, 1877	8
Vermont			Burlington	—25	1882	Woodstock	—38	1878	8
Virginia	Norfolk	19.9	Norfolk	8	1879	Fortress Monroe	2	1857	49
Do	Lynchburg	12.0	Lynchburg	— 4	1877	Mount Solon	—18	1881	7
Washington Territory	Olympia	28.0	Olympia	9	1883	Fort Colville	—33	1875	20
Do	Spokane Falls	—14.0	Spokane Falls	—28	1883	Fort Walla Walla	—24	1862	11
West Virginia			Morgantown	— 6	1875	Helvetia	—14	1877	7
Wisconsin	Milwaukee	—21.5	Milwaukee	—21	1873	Milwaukee	—30	1864	11
Do	La Crosse	—25.1	La Crosse	—43	1873	Embarras	—40	1875	19
Wyoming	Cheyenne	—18.6	Cheyenne	—38	1875	Fort Laramie	—40	1864	29

Monticello, White county, Indiana: at 7 a. m. on the 22d the thermometer (Green's) showed a temperature of —29°.5, which is the lowest ever recorded at this place.

Mount Washington, New Hampshire: on the morning of the 22d the temperature fell to —50°, which is the lowest ever recorded at this station.

Muscatine, Iowa: on the morning of the 28th the thermometer recorded —34°.5, which is the lowest temperature registered here for twenty-three years.

Dubuque, Iowa: the temperature was below zero all day on 19th and 21st; the work of cutting ice was suspended on account of the intense cold. On the 22d the minimum temperature was —21°.6; on the 28th the temperature fell to —22°.5, the lowest of the winter.

FROSTS.

Frosts occurred in the various districts on the following dates:

New England.—1st to 5th, 8th to 31st.

Middle Atlantic states.—1st to 5th, 8th to 11th, 13th, 14th, 15th, 17th to 31st.

South Atlantic states.—2d to 9th, 13th, 14th, 17th to 30th.

Florida peninsula.—Cedar Keys, 17th, 18th; Saint Augustine and Limona, 8th; Archer, 8th, 9th, 18th; Newport, 2d, 3d, 4th, 8th, 9th, 18th, 19th, 27th.

East Gulf states.—2d to 5th, 8th, 9th, 10th, 13th, 17th to 20th, 22d to 30th.

West Gulf states.—1st, 2d, 3d, 7th to 13th, 16th to 22d, 25th to 29th.

Rio Grande valley.—Brownsville, Texas, 1st; Rio Grande City, Texas, 2d, 26th.

Tennessee.—1st to 4th, 10th, 13th, 16th to 30th.

Ohio valley.—1st to 5th, 8th, 9th, 10th, 13th, 14th, 19th to 24th, 26th, 30th, 31st.

Lower lake region.—1st to 5th, 8th, 9th, 10th, 13th, 14th, 20th to 23d; 28th to 31st.

Upper lake region.—1st to 31st.

Extreme northwest.—1st to 31st.

Upper Mississippi valley.—1st to 31st.

Missouri valley.—1st to 31st.

Northern slope.—1st to 7th, 9th to 31st.

Middle slope.—1st to 31st.

Southern slope.—1st, 2d, 6th, 7th, 8th, 12th, 19th, 20th, 25th, 26th, 28th to 31st.

Southern plateau.—1st to 31st.

Middle plateau.—1st, 2d, 3d, 6th to 9th, 12th to 16th, 20th to 31st.

Northern plateau.—9th, 11th to 15th, 18th to 28th, 31st.

North Pacific coast region.—1st, 2d, 8th to 17th, 19th to 28th.

Middle Pacific coast region.—3d, 4th, 11th, 12th, 14th, 15th, 17th to 26th.

South Pacific coast region.—3d to 7th, 13th, 15th to 22d, 24th, 25th, 26th, 30th, 31st.

ICE.

Ice formed in the southern parts of the country as follows:

Arizona.—Wickenburg, 1st, 16th, 24th to 27th, 30th.

California.—Poway, 3d.

Florida.—Jacksonville, 18th.

Georgia.—Milledgeville, 26th, 27th; Athens, 3d; Atlanta, 23d, 24th; Savannah, 3d, 18th.

Louisiana.—New Orleans, 2d, 17th, 18th.

North Carolina.—Lincolnton, 24th; Wilmington, 2d; New River Inlet, 3d, 18th, 19th, 21st, 23d, 27th; Portsmouth, 23d.

Texas.—Galveston; 1st, 2d, 17th; Indianola, 1st, 2d, 16th, 17th, 18th, 21st; Brownsville, 2d, 17th; Rio Grande City, 2d, 16th; Fort Stockton, 1st, 2d.

PRECIPITATION.

[*Expressed in inches and hundredths.*]

The distribution of rainfall over the United States and Canada, for the month of January, 1885, as determined from reports from more than seven hundred stations, is exhibited on chart iii.

In the extreme northwest, the central Missouri and lower Arkansas valleys, the Rocky mountain districts, and on the Pacific coast, the precipitation has been below the January average. In these districts the deficiencies have been small, except on the Pacific coast, where they ranged from 1.00 in southern California to 3.50 in Oregon and Washington Territory. In the southern slope, West Gulf states, and in all districts east of the Mississippi river, the precipitation has been in excess of the average; in the more northerly of these districts, the departures have been small, but in the Gulf states, central Ohio valley, and in the western portions of Virginia and the Carolinas, they have varied from 2.00 to 7.00, the greatest excess occurring in the Gulf states. In the table of miscellaneous data will be found the monthly rain-falls as reported from the Signal Service stations, with the departures from the normal.

In the following table are shown, for each of the geographical districts, as deduced from Signal Service observations, the average January precipitation for a series of years; the average for January, 1885, and the departures from the normal.

Average precipitation for January, 1885.

Districts.	Average for Jan. Signal-Service observations.		Comparison of Jan., 1885, with the average for several years.
	For several years.	For 1885.	
	Inches.	*Inches*	*Inches.*
New England	3.90	4.56	+0.66
Middle Atlantic states	3.93	4.41	+0.48
South Atlantic states	4.90	6.73	+1.77
Florida peninsula	3.64	5.41	+1.77
Eastern Gulf states	5.84	9.15	+3.31
Western Gulf states	3.94	7.13	+3.19
Rio Grande valley	1.68	3.12	+1.44
Tennessee	6.23	7.25	+1.02
Ohio valley	3.45	4.45	+1.00
Lower lake region	2.68	2.72	+0.04
Upper lake region	1.86	2.74	+0.88
Extreme northwest	0.64	0.40	−0.24
Upper Mississippi valley	1.79	2.00	+0.21
Missouri valley	0.69	0.54	−0.15
Northern slope	0.97	0.80	−0.11
Middle slope	0.39	0.33	−0.06
Southern slope	0.67	0.83	+0.16
Southern plateau	0.74	0.13	−0.61
Middle plateau	1.31	1.13	+2.18
Northern plateau	2.84	2.00	−0.84
North Pacific coast region	8.10	4.60	−3.50
Middle Pacific coast region	5.02	2.18	−2.84
South Pacific coast region	1.47	0.47	−1.00
Mount Washington, N. H.	4.14	5.49	+1.35
Pike's Peak, Colo.	1.61	0.60	−1.01

DEVIATIONS FROM AVERAGE PRECIPITATION.

The departures exhibited by reports from the regular Signal Service stations are shown in the table of averages for the several districts and in the table of miscellaneous meteorological data. The following notes in connection with this subject are reported by voluntary observers:

Arkansas.—Lead Hill, Boone county: monthly precipitation, 2.65, is about the January average for the last three years.

Illinois.—Anna, Union county: monthly precipitation, 4.64, is 0.96 in excess of the January average for the last ten years.

Sycamore, DeKalb county: monthly precipitation, 2.66, is 1.27 above the January average for the three preceding years.

Riley, McHenry county: monthly precipitation, 2.32, is 0.52 above the January for the last twenty-four years.

Indiana.—Vevay, Switzerland county: monthly precipitation, 5.45, is 1.40 above the January average for the last twenty years.

Logansport, Cass county: monthly precipitation, 2.01, is 0.05 below the January average for the last twenty-six years.

Wabash, Wabash county: monthly precipitation, 2.68, is 0.91 above the January average for the last nine years.

Spiceland, Henry county: monthly precipitation, 4.00, is 1.10 above the January average for the last twenty-six years.

Kansas.—Lawrence, Douglas county: monthly precipitation, 1.66, is 0.46 above the January average for the last seventeen years.

Wellington, Sumner county: monthly precipitation, 1.20, is 0.56 above the January average for the last seven years.

Independence, Montgomery county: monthly precipitation, 2.12, is 0.53 above the January average for the last thirteen years.

Maine.—Gardiner, Kennebec county: monthly precipitation, 5.26, is 1.94 in excess of the January average for the last forty-nine years.

Maryland.—Fallston, Harford county: monthly precipitation, 4.65, is 1.03 above the January average for the last fourteen years.

Cumberland, Allegheny county: monthly precipitation, 3.80, is 1.76 above the January average for the last twelve years.

Massachusetts.—Worcester, Worcester county: monthly precipitation, 5.01, is 1.24 above the January average for a period of forty-seven years; the monthly snowfall, 16.1 inches, is about one-half inch more than the January average.

Missouri.—Saint Louis: monthly precipitation, 3.56, is 1.39 above the January average.